

APPLICATION NO. 10/076,046
DOCKET NO. P2005-1/N8208

REMARKS

Claims 1-20 were pending in the above-captioned application; new claims 21-27 have been added herein in order to more clearly define and fully protect Applicants' invention. In addition, claim 2 has been amended to correct the typographical error noted in the Office Action. Reconsideration and allowance of all claims 1-27 is respectfully requested.

Drawings

The Office Action requires the submission of formal drawings to avoid abandonment of the above-captioned application. Attached hereto are replacement Figs. 1-11 to entry herewith. Acceptance of these drawing figures is respectfully requested.

Allowed Claim

The Office Action indicates that claim 15 would be allowable if rewritten in independent form. Newly added claims 21-27 constitute claim 15 rewritten in independent form, with additional claims depending therefrom. Allowance of these claims 21-27 is therefore believed appropriate.

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Prior Art Rejections

Claims 1-3 and 5 stand rejected under 35 U.S.C. §102(b) over Chennell et al. (U.S. Patent No. 6,484,583). In addition, claims 4, 11-14 and 18-20 stand rejected under 35 U.S.C. §103(a) over Chennell et al. in view of Collins et al. (U.S. Patent No. 3,780,570), claims 6-10 and 16-17 stand rejected under 35 U.S.C. §103(a) over Chennell et al. in view of Mizzi (U.S. Patent No. 5,770,913). However, as indicated hereinbelow, none of the cited references anticipates or renders obvious the inventions of the rejected claims; thus, these rejections should be withdrawn.

More particularly, the claimed invention of the above-captioned application is for an automated testing system for 100% coverage in the production testing of graphite electrodes. It consists of two robotically controlled arms remotely operated by a computer system. These arms each possess specifically developed roller transducers for continuous scanning of an indexed electrode which is an integral part of the scanning system. The roller transducers are held at opposite ends of two separate yokes, which are robotically placed on the electrode by the two robotically controlled arms. The angle of incidence of the roller transducers are also controlled by the computer, allowing through transmission scans to be performed at points other than those directly opposite from one another, i.e. chord scanning. This results in the ability to perform the disclosed CAT scanning technique. The continuous collection of data and automated scanning allows reproduction of the sonic velocity profile into a defect map of the internal structure of the electrode. The CAT scanning ability provides reproduction of internal structure and enhanced

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resolution. The roller transducers have been specifically designed for graphite through the use of compliant coupling materials and mechanical design to control the pressure applied to the pad through which the oil filled wheels containing the transducers are coupled to the surface of the electrode. The stainless steel ring on the transducer wheel is designed to limit the compression of the coupling pad, therefore minimizing the variation in the amount of signal passed in to the electrode for through transmission testing. Additionally, the pressure applied by the pneumatics of the yoke assembly also helps control the pressure applied to the transducers. The two yoke system working in tandem allows an increase in scanning speed, but requires the synchronization of the firing of the ultrasonic transducers and alternating collection of the data. In the past, ultrasonic testing of graphite electrodes has been limited to the one shot scans which are the basis for the Chennell et al. patent. The pass through ability of this electrode scanning system also allows the ability to feed electrodes in one end of the machine and remove them from the other, allowing its use in the production environment. The encoders are designed to lock on the end of the electrode and move out of the way for the next piece to move in.

The Chennell patent provides a manual assembly for holding of two transducers to be used on opposite surfaces of a hollow cylindrical surface. The transducers are on the interior hollow surface and the exterior surface of a composite material. The yoke is designed to align two transducer faces parallel to each other for an operator to manually lift them in place by hand and take a

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reading. This is a handheld device, and the positions are not encoded, controlled or recorded. The ultrasonic readings are acquired electronically, but this is required in all ultrasonic applications. Couplants are applied manually and are exterior to the transducers. This is a one shot single test location system, differing in form and function from the invention of the rejected claims, and does not anticipate or render obvious the claimed invention of the above-captioned application.

The secondary references appear to have no relation to the instant application, and do not so alter the Chennell et al. disclosure to provide a suggestion of the rejected claims.

Accordingly, nothing in the cited references anticipates or suggestions the rejected claims, and the rejections should be withdrawn.

The references cited but not applied have been reviewed and are not deemed sufficiently pertinent to require additional comment.

CONCLUSION

Based on the foregoing amendments and remarks, it is believed that all pending claims 1-27 are now in condition for allowance. Such action is earnestly sought. If there remains any matter which prevents the allowance of any of these claims, the Examiner is requested to call the undersigned, collect, at 615-242-2400 to arrange for an interview which may further expedite prosecution.

Pursuant to 37 C.F.R. § 1.136(a), Applicants petition the Commissioner to extend the time for responding to the October 27, 2003 Office Action for 2 months from

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January 27, 2004, to March 27, 2004. Applicant authorizes the Commissioner to charge the petition fee of \$420 to Deposit Account 21-0010. In addition, the Commissioner is also authorized to charge the excess claims fees of \$212, also to Deposit Account 21-0010. Any other fees due attendant to the filing of this response can also be charged to Deposit Account 21-0010.

Respectfully submitted,



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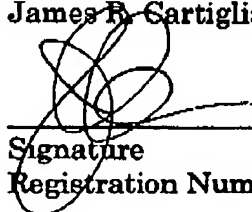
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CERTIFICATE OF FACSIMILE TRANSMITTAL

I hereby certify that this Response to Office Action, including request for extension of time to respond (14 pages), drawings (10 pages) and certificate of facsimile transmittal (1 page), are being facsimile transmitted to the United States Patent and Trademark Office, Fax No. (703) 872-9306.

James R. Cartiglia



Signature

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26 March '04

Date